

**WHAT IS CLAIMED IS:**

1. A method of communicating between a first node and a second node in an ad-hoc communication system, the method comprising the steps of:

defining periodic windows for the first and the second nodes, each of said periodic windows including a time point located therein, said time point locations

changing in a pseudo-random manner in consecutive periodic windows; and

initiating, by the first node, during one or more of the time points, communication with the second node.

2. The method of claim 1, comprising the additional step of:

transmitting, when the first node communication is detected, a signal from said second node to said first node.

3. The method of claim 1, wherein the step of defining periodic windows includes previously communicating a periodic window length from the second node to the first node.

4. The method of claim 1, wherein positions of the time points are pseudo-randomly generated according to a node address of the second node.

5. The method of claim 4, wherein positions of the time points are pseudo-randomly generated according additionally to a clock of the second node.

6. The method of claim 1, wherein positions of the time points are pseudo-randomly generated according to a clock of the second node.

7. The method of claim 1, wherein each periodic window is further defined as a power of two multiple slots, one of the slots containing the time point.

8. The method of claim 1, wherein the first node initiates communication with the second node by sending an inquiry message.

9. The method of claim 8, wherein the second node checks at the time point for the inquiry message from the first node by listening for an inquiry message, and upon receiving the inquiry message signals the first node by sending an inquiry response message.

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10. The method of claim 1, further comprising steps of:  
waiting to send a message by the first node until a next time point at which the second node is expected to be present; and  
initiating a data transmission from the first node to the second node.

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11. The method of claim 1, wherein the frequency-hopping based communication infrastructure is a Bluetooth system.

12. The method of claim 1, wherein when the first node communication is not detected at the second node, the first node skips a random back-off number of pseudo-random time points before retrying the initiation.

13. The method of claim 12, wherein when no response to the first node communication is received at the first node from the second node for a threshold number of attempts, the value of the periodic window is doubled.

14. The method of claim 1, wherein the first node initiates communication with the second node by sending a page message.

15. The method of claim 14, wherein the second node passively checks at the time point for the page message from the first node by listening for a page message, and upon receiving the page message signals the first node by sending a page response message.

16. A node arranged to communicate in an ad-hoc communication system, the node comprising:

means that define periodic windows for the node, each of said periodic windows including a time point located therein, said time point locations changing in a pseudo-

random manner in consecutive periodic windows; and

means that initiate during one or more of the time points, communication with another node of the ad-hoc frequency-hopping based communication infrastructure.

5           17.    The node of claim 16, additionally comprising means that receive a signal from said other node.

10           18.    The node of claim 16, wherein positions of the time points are pseudo-randomly generated according to a node address of the other node.

15           19.    The node of claim 18, wherein positions of the time points are pseudo-randomly generated according additionally to a clock of the other node.

20           20.    A computer program product for controlling communication between a first node and a second node in an ad-hoc communication system, the computer program product comprising:

              a computer-readable storage medium having computer-readable program code means embodied in said medium, said computer-readable program code means including:

                          logic that defines periodic windows for the first and the second nodes, each of said periodic windows including a time point located therein, said time point locations changing in a pseudo-random manner in consecutive periodic windows; and

                          logic that initiates, via the first node, during one or more of the time points, communication with the second node.

25           21.    The computer program product of claim 20, wherein the computer-readable program code means further comprises logic that transmits, when the first node communication is detected, a signal from said second node to said first node.

30           22.    The computer program product of claim 20, wherein positions of the time points are pseudo-randomly generated according to a node address of the second node.

23. The computer program product of claim 22, wherein positions of the time points are pseudo-randomly generated according additionally to a clock of the second node.

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